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ESC'S ANALYTICAL SUPPORT
TO THE ROK - 1970 TO 1990

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19. ABSTRACT (Continue on reverse if necessary and identify by block number) This paper reviews current and past Engineer Studies Center (ESC) analytical efforts supporting the defense of the Republic of Korea (ROK). This paper also provides unclassified abstracts of classified and unclassified ESC publications that have been written in support of the defense of the ROK. ESC found in its review that for over 20 years (1970 to 1990), we have provided high-quality, critical, and responsive studies in support of the defense of the ROK. These studies address a wide range of topics and problems--from tunnel detection to the effectiveness of the South Korean barrier system. These studies look not only at engineer-related problems--but intelligence, logistical, and strategic planning problems as well. During the early 1970s, ESC concentrated on issues relating to U.S. base development throughout the Korean Peninsula. Later, ESC focused on tunnel neutralization. In the early 1980s, ESC began to concentrate on the vulnerability of fixed-bases, particularly air bases. ESC also performed several terrain analyses of approach corridors along the Demilitarized Zone (DMZ). Using this foundation, ESC began to concentrate on combat engineer assessments and					
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the effectiveness of the Korean barrier system. Today, ESC continues to support our national security interests in the Northeast Asian region by analyzing the impact of force drawdowns on facility requirements in the ROK. <

**ESC'S ANALYTICAL SUPPORT
TO THE ROK - 1970 TO 1990**

Prepared by
Engineer Studies Center
U.S. Army Corps of Engineers

December 1990

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LIST OF ABBREVIATIONS AND ACRONYMS

CINC	Commander-in-Chief
CINC UNC/CFC	Commander-in-Chief, United Nations Command/Combined Forces Command
COMMZ	Communications Zone
DMZ	Demilitarized Zone
DTIC	Defense Technical Information Center
ESC	Engineer Studies Center
EUSA	Eighth United States Army
FCZ	Forward Combat Zone
FY	Fiscal Year
MACOM	Major Command
OPLANs	Operation Plans
ROK	Republic of Korea
ROK/U.S. CFC	Republic of Korea/United States Combined Forces Command
U.S.	United States
U&S	Unified and Specified
USFK	United States Forces Korea

I. INTRODUCTION

1. **PURPOSE.** This paper reviews current and past Engineer Studies Center (ESC) analytical efforts supporting the defense of the Republic of Korea (ROK). In this age of shrinking defense dollar and changing geo-political spectrum, we look upon our 20 years of continuous analytical contributions to the ROK, not as an accomplishment of the past, but as a resource that can be depended upon in the future.

2. **SCOPE.** This paper--

- a. Summarizes ESC's current analysis supporting the ROK.
- b. Reviews ESC's past efforts in support of the ROK.
- c. Provides unclassified abstracts of classified and unclassified ESC publications that have been written in support of the defense of the ROK.

3. **BACKGROUND.**

a. **ESC's Korea-Oriented Studies.** Three major factors prompted ESC to publish this short paper about our work analyzing problems relating to the defense and stability of the ROK.

(1) In October 1990, BG Shin, Arm, Assistant Chief of Staff, Engineer, Republic of Korea/United States Combined Forces Command (ROK/U.S. CFC) (hereafter referred to as CFC), visited ESC. In preparation for BG Shin's visit, ESC undertook a review of its analytical contributions to the defense of the ROK. ESC found in its review that for over 20 years, it has provided continuous analytical support to various commands throughout the ROK.

(2) Recent changes in the geo-political environment in Eastern Europe and in Central America have lessened the threat to U.S. security interests in those regions. This change in the U.S. security focus has affected interests and operations in other areas of the world, particularly the Korean Peninsula. Decisionmakers want to know what effect these recent geo-political changes will have on the political, military, and economic situation in north and South Korea. More directly, these leaders want to know what analytical agencies can provide information to support the decisions that must be made in the upcoming years. This paper provides information on ESC study efforts that address this important region.

(3) The U.S. defense budget is tightening. Again, decisionmakers want to know how Congressional budgetary constraints will affect our national security interests in Northeast Asia. This paper reveals how ESC has addressed some of these issues in the past and how we can apply our experience to future problems.

b. **ESC's Analytical Efforts.** ESC's analytical efforts are not directed strictly at problems affecting operations in the ROK. ESC's mission is to help the Corps of Engineers,

the Army and Department of Defense (DOD) decisionmakers resolve critical issues through innovative and cost-effective studies. Our strength lies in our ability to target a problem, analyze it thoroughly, and recommend viable solutions. Our efforts can not only be grouped according to functional categories, but according to geography as well. Today, we are analyzing emergency preparedness, computer simulations, and war damage assessments. Concurrently, our efforts also cover problems affecting Southwest Asia, Europe, Central America, and the ROK.

4. ORGANIZATION. This paper has three major sections:

a. **Section I:** *Introduction*, briefly describes the paper.

b. **Section II:** *Discussion*, is divided into three parts:

(1) An overview of ESC's Korea-oriented studies.

(2) A look at current ESC Korea-oriented studies.

(3) A summary of past ESC Korea-oriented studies.

c. **Section III:** *ESC's Korean Studies Abstracts* provides abstracts of the ESC studies produced in support of the ROK's stability.

5. COMMENTS AND SUGGESTIONS. Inquiries regarding ESC, its current study program, published studies, or its study efforts relating to the ROK can be directed to:

Director/Technical Director
U.S. Army Engineer Studies Center
Casey Building # 2594
Fort Belvoir, Virginia 22060-5583
(703) 355-2290

Orders for ESC studies and publications should be directed to:

Administrator
Defense Technical Information Center (DTIC)
Alexandria, Virginia 22304-6145
(703) 274-7633

II. DISCUSSION

6. **OVERVIEW OF ESC'S KOREA-ORIENTED STUDIES.** ESC has provided high-quality, critical, and responsive studies in support of the ROK's defense for over 20 years (1970 to 1990). The studies highlighted in this paper represent efforts requested by commanders in that region and are dedicated exclusively to issues about Korea. ESC has produced other studies that include issues relating to Korea, but only as part of a larger umbrella topic. ESC has *NOT* included descriptions of these umbrella type studies in this paper.

7. **ESC's CURRENT KOREA-ORIENTED STUDIES.** The Chief of Engineers, LTG Henry J. Hatch, has approved the ESC FY 1991 study program. This program provides analytical support to a wide variety of major commands--including CFC and U.S. Forces Korea (USFK)/Eighth U.S. Army (EUSA). Specifically, ESC has programmed analytical support for three major Korean studies requested by the commander, USFK. These three studies are:

a. *ROK Peninsula Master Plan.* This study will develop a strategy for changing the stationing of U.S. forces in Korea to support planned reductions in the U.S. presence in Korea over the next 10 years. The results of this study will serve as guidance for follow-on work by the Corps of Engineers, Pacific Ocean Division and the Far East District to develop detailed base master plans defining facility and infrastructure changes needed at the remaining U.S. occupied bases in Korea.

b. *War Damage Assessment, ROK.* Changes and advances in the north Korean military capability prompted USFK to request ESC to conduct a war damage assessment for the ROK. Of particular concern to USFK is the capability of threat forces to cripple wartime operations at key facilities in the ROK's COMMZ. ESC's plans to estimate war damage by defining an operational scenario where threat and targets can be defined. ESC will then input this data into a damage model to calculate the damage to individual facilities. The threat will be allocated so that damages can be estimated over time.

c. *Class IV Assessment, ROK.* USFK requested ESC to do this study to identify the wartime Class IV needs of U.S. forces in the ROK COMMZ. This study will use the scenario and damage factors developed by the *War Damage Assessment, ROK* study along with construction and maintenance requirements to predict the types and amounts of Class IV materials needed over time. The Class IV requirements will be identified by time period, priority, service, and region/base.

8. **ESC's PAST KOREA-ORIENTED STUDIES.** During the last 20 years, ESC has dedicated a portion of its analytical power to topics affecting the defense of the ROK. These studies addressed a wide range of defense-related issues. A summary follows, while detailed abstracts of these studies are found in **Section III**.

a. **1970-1980.** ESC continued work on European projects during the 1970s, but turned away from nuclear operations planning, and closed out its Vietnam-related projects. ESC's efforts turned to the question of strategic base development, which included base

development in Korea. ESC analysts also provided analytical support to tunnel neutralization efforts in the ROK.

(1) **Base Development.** ESC military planners possess extensive experience in the field of overseas base development--to include Korea. As part of the Army's global planning efforts, ESC analyzed the Army's forward strategic basing requirements. Requirements for Korean bases were a major part of this analysis. Analysts at ESC followed this global basing perspective by providing in-depth base development plans for the Korean theater.

(2) **Tunnel Neutralization.** ESC has supported ROK/U.S. efforts in the tunnel neutralization field since the first tunnel was discovered under the Korean Demilitarized Zone (DMZ). ESC produced four studies that took in-depth looks at the tunnel detection problem.

b. **1980-1990.** ESC analysts gained significant insights and experience while working on Korean study projects in the 1970s. That work proved invaluable because it provided the analytical foundation for ESC efforts during the 1980s. Although ESC's studies were diverse, our analysts concentrated on solving problems in five major areas.

(1) **Barrier and Obstacle Systems.** In 1982, ESC completed its first evaluation of the adequacy of the obstacle plan supporting operation plans (OPLANs) for CFC. Since that time, ESC has updated and revisited its original analysis of the CFC obstacle plan. In 1984, ESC provided a data base update. In 1988, CFC requested that ESC revisit its original analysis of the obstacle plan. ESC responded by publishing three studies. Two of the studies were supporting efforts that addressed the strategic performance of defensive barriers and the north Korean counterbarrier threat. ESC's main effort, published in 1990, provided an up-to-date assessment of the Korean barrier system.

(2) **Topographic Engineering.** ESC supported the U.S. Army Western Command (now U.S. Army Pacific Command) with analytical assessments of topographic engineering missions in their theater. These assessments included a review of topographic engineer support during a conflict in the ROK. They are entitled, *Topographic Assessment, Pacific: Korean Conflict (ROKA Forces)* and *Topographic Assessment, Pacific: Korean Conflict (US Forces)*.

(3) **Combat Engineering.** ESC addressed the problems associated with combat engineering in many overseas contingency areas, including Korea. In 1985, ESC published an in-depth look at the requirements and capabilities of engineer forces in the FCZ during a conflict in Korea. ESC followed that analysis with an examination of the roles of engineers in the COMMZ. These studies were summarized in a ROK theaterwide analysis in 1987.

(4) **Base Vulnerability.** In the late 1970s, ESC took an initial look at the vulnerability of air bases in the ROK. Building upon that effort, ESC took an in-depth look in the early 1980s through four studies. In two of these studies, ESC addressed the problems associated with the air and special purpose forces threat to air bases in the ROK. The remaining two study efforts looked at specific problems associated with airfield damage repair.

(5) *Terrain Analysis.* ESC analysts performed two terrain analyses of approach corridors along the DMZ during the early 1980s. Follow-on work on the remaining approach corridors was turned over to the 29th Engineer Battalion (TOPO).

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III. ESC's KOREAN STUDIES ABSTRACTS

9. **GENERAL.** This section is divided into two parts. For quick reference, the first part presents publication numbers and the titles of ESC's Korea-oriented studies, arranged in reverse chronological order, starting with the most recent title first. The title list is followed by abstracts. The abstracts provide information needed to obtain a better concept of a particular study. The abstracts also provide key elements of information needed to order any of ESC's publications from Defense Technical Information Center (DTIC).

CEESC-R-90-7	The Korea Barrier System Study
CEESC-R-89-10	The north Korean Counterbarrier Threat
ESC-R-88-13	The Strategic Performance of Defensive Barriers
ESC-R-87-11	Engineer Assessment, Korea Theaterwide Analysis
ESC-R-87-17	Topographic Assessment, Pacific: Korean Conflict (ROKA Forces)
ESC-R-87-20	Engineer Assessment, Korea: Communications Zone Analysis
ESC-R-86-13	Topographic Assessment, Pacific: Korean Conflict (US Forces)
ESC-R-86-3	Strategic and Tactical Initiatives for OPLAN 5027
ESC-R-86-4	Northeast Asia Class IV
ESC-R-86-6	Engineer Assessment, Korea: Forward Combat Zone Analysis
-----	USFK Family Support Systems Study
ESC-R-85-13	Engineer Assessment, Korea: FCZ Analysis, Analytic Data Base
ESC-R-84-1	Engineer Analysis of Special Routes--Korea (Special-K)--Route C
-----	Korea Barrier Study (Data Base Update)
ESC-R-83-3	Vulnerability of Airbases in the ROK--1982-1985
ESC-R-83-4	Assessment of Special Purpose Forces Threat to Airbases in the ROK
ESC-R-83-5	Assessing the Vulnerability of Airbases in the ROK to Air Attack
ESC-R-83-6	Engineer Implications of Damage to Airbases in the ROK

ESC-R-83-8	Methodology for Conducting an Engineer Analysis of Special Routes-Korea
ESC-R-83-15	Engineer Analysis of Special Routes-Korea (SPECIAL-K) Pilot Route B
ESC-R-82-4	An Evaluation of the Adequacy of the Obstacle Plan Supporting CINCUNC/CFC OPLAN 5027
ESC-R-82-6	FASCAM Employment Potential for the Combined Forces Command
ESC-R-336	DMZ Tunnel Study--1980 Update
ESC-R-307	Tunnel Study Update--Western DMZ
ESC-R-306	Vulnerability of Military Air Bases in South Korea -- A Damage and Repair Assessment
ESC-R-303	An Operational Assessment Related to Project: "Night Fishing"
ESC-R-293	Special Stationing Scenario
ESC-R-290	Army Forward Strategic Basing Requirements
ESC-R-284	Land Force Planning Estimates, Northeast Asia
ESC-R-280	north Korean Tunnels Under the DMZ
ESC-R-248	Base Development Plans
ESC-R-209	Force Requirements-Northeast Asia

CEESC-R-90-7

TITLE: The Korea Barrier System Study

SHORT TITLE: KBS

DATE PUBLISHED: March 1990

STUDY TEAM: Mr. Stephen C. Reynolds
Mr. Robert H. Halayko
Mr. Otha W. Evans
CPT Dale M. Bleckman

CLASSIFICATION: SECRET-RELROK

NUMBER OF PAGES: 369

AD NUMBER: C957 261L

STUDY CATEGORY: Concepts and Plans

PREPARED FOR: ROK/U.S. Combined Forces Command

ABSTRACT: This study examines the system of obstacles emplaced to block an attack across the Korean Demilitarized Zone. The existing barrier system and the barrier alternatives developed in this study are each evaluated on how well they support current Combined Forces Command forces and OPLANs. The study is based primarily on available intelligence estimates of current north Korean counterbarrier capabilities. To ensure that barrier improvements ESC recommends will not become obsolete by changes the threat could easily make, ESC also assessed improved counterbarrier systems the north Korean forces are likely to acquire in the near future.

CEESC-R-89-10

TITLE: The north Korean Counterbarrier Threat

SHORT TITLE: None

DATE PUBLISHED: July 1989

STUDY TEAM: Mr. Stephen Reynolds
Mr. Richard Taylor
Mr. Reuben Harris

CLASSIFICATION: SECRET-RELROK

NUMBER OF PAGES: 94

AD NUMBER: C956610

STUDY CATEGORY: Operations and Force Structure

PREPARED FOR: ROK/U.S. Combined Forces Command

ABSTRACT: This study report assesses the current and future capability of north Korean (nK) ground forces to breach components of the barrier system that guard potential invasion routes into the Republic of Korea (ROK). This report supports the larger ESC study effort, *Analysis of Korean Barrier System Alternatives*. In a more specific context, this report examines the organization and doctrine of nK mobility and counterbarrier forces; examines the current (1989) and future (1990-2000) capability of nK forces to conduct countermine, counterobstacle, and river-crossing operations; discusses the limitations and strengths of the nK to conduct counterbarrier operations; and recommends improvements to current barrier placement techniques in South Korea to exploit the nK's weaknesses and neutralize its strength.

ESC R-88-13

TITLE: The Strategic Performance of Defensive Barriers

SHORT TITLE: None

DATE PUBLISHED: May 1988

STUDY TEAM: Mr. Stephen Reynolds
Dr. Paul Seguin

CLASSIFICATION: UNCLASSIFIED

NUMBER OF PAGES: 37

AD NUMBER: None

STUDY CATEGORY: Concepts and Plans

PREPARED FOR: Combined Forces Command (CFC)

ABSTRACT: This paper reviews the strategic performance of barrier and fortification systems built by a variety of countries in the 19th and 20th centuries for lessons applicable to the design of a future Korea Barrier System. Those systems built in peacetime for the purposes of deterring invasion or stopping an initial attack during the beginning of a war were found to be most comparable to the nature of the Korea Barrier System. The barrier/fortifications systems reviewed include those of France (the Sere de Rivieres and the Maginot Lines), Germany (the Siegfried Line), the Low Countries (Eben Emael in Belgium, the water barriers in the Netherlands), Great Britain (Gibraltar and Singapore), Finland (the Mannerheim Line), and Israel (the Bar-Lev Line).

ESC R-87-11

TITLE: Engineer Assessment, Korea Theaterwide Analysis

SHORT TITLE: EAK, TWA

DATE PUBLISHED: September 1987

STUDY TEAM: Mr. Dean Considine
Mr. Robert Halayko

CLASSIFICATION: SECRET-RELROK

NUMBER OF PAGES: 80

AD NUMBER: None

STUDY CATEGORY: Military Operations, Strategy, and Tactics

PREPARED FOR: ROK/U.S. Combined Forces Command

ABSTRACT: This study integrates the results of ESC Forward Combat Zone and Communications Zone assessments of the time-phased engineer requirements and capabilities to support the ROK/U.S. Combined Forces Command in the event of war between north and South Korea. The analysis identifies a number of shortfalls and imbalances in engineer resources and recommends actions that are necessary to reduce those shortfalls.

ESC R-87-17

TITLE: Topographic Assessment, Pacific: Korean Conflict (ROKA Forces)

SHORT TITLE: TAPAC: ROKA Forces

DATE PUBLISHED: June 1987

STUDY TEAM: Mr. James Tate
Mr. Charles R. Bailey

CLASSIFICATION: SECRET-RELROK

NUMBER OF PAGES: 250

AD NUMBER: C954781L

STUDY CATEGORY: Military Forces and Organizations

PREPARED FOR: United States Army Western Command

ABSTRACT: This study addresses the nonstandard topographic support requirements for the ROKA under OPLAN 5027. Results are provided for two scenarios, a deliberate scenario of 95 days and an immediate scenario of 51 days. The study results show that 95 percent of ROKA wartime topographic support effort is for nonstandard products and services. Total requirements ranged from 103 man-years for the immediate scenario, when a data base is available, to 180 man-years for the deliberate scenario, when no data base is available. Major recommendations included training ROKA soldiers as terrain analysts and establishing a topographic support capability at Corps and Army Headquarters levels.

ESC R-87-20

TITLE: Engineer Assessment, Korea: Communications Zone Analysis

SHORT TITLE: COMMZ Analysis

DATE PUBLISHED: August 1987

STUDY TEAM: Mr. Dean Considine
Mr. Robert Halayko

CLASSIFICATION: SECRET-RELROK

NUMBER OF PAGES: 250

AD NUMBER: None

STUDY CATEGORY: Military Forces and Organizations

PREPARED FOR: ROK/U.S. Combined Forces Command

ABSTRACT: This study assesses the time-phased engineer requirements and capabilities to support the ROK/U.S. Combined Forces Command in the event of war between north and South Korea. The analysis identifies a number of shortfalls and imbalances in engineer resources and recommends actions that the U.S. Army should undertake to reduce those shortfalls.

ESC R-86-13

TITLE: Topographic Assessment, Pacific: Korean Conflict (US Forces)

SHORT TITLE: TAPAC: US Forces

DATE PUBLISHED: November 1986

STUDY TEAM: Mr. James Tate
Mr. Michael Kishiyama

CLASSIFICATION: SECRET-RELROK

NUMBER OF PAGES: 408

AD NUMBER: C954070

STUDY CATEGORY: Military Forces and Operations

PREPARED FOR: United States Army Western Command

ABSTRACT: This study analyzes U.S. Army Western Command's (WESTCOM) 1990 topographic engineer requirement and capabilities in support of one of its missions--the support of CFC in a conflict on the Korean Peninsula. This report is one of four which addresses U.S. Army wartime topographic requirements in the Pacific. It addresses the topographic functions of terrain analysis, production, and map distribution for both standard and nonstandard topographic products. Requirements estimates are based on CFC operational plans and approved scenarios. Capability is based on a 1990 topographic force structure and planned deployments. Time-phased requirements and capabilities are compared to determine WESTCOM's ability to provide topographic support. The report provides a number of specific findings, conclusions, and recommendations for improving WESTCOM's ability to provide topographic support.

ESC-R-86-3

TITLE: Strategic and Tactical Initiatives for OPLAN 5027

SHORT TITLE: None

DATE PUBLISHED: April 1986

STUDY TEAM: CPT John Livingston
Dr. Paul Seguin

CLASSIFICATION: SECRET-RELROK

NUMBER OF PAGES: 53

AD NUMBER: None

STUDY CATEGORY: Concepts and Plans

PREPARED FOR: ROK/U.S. Combined Forces Command

ABSTRACT: This report analyzed CFC OPLAN 5027 to determine if the current planning could be better tailored to meet the OPLAN objectives. It examines the basic strategy of OPLAN 5027 and its supporting logistical planning relative to the north Korean threat and the Korean geography. Alternate strategies are proposed and examined, and their relative prospects for success are evaluated.

ESC R-86-4

TITLE: Northeast Asia Class IV

SHORT TITLE: Class IV

DATE PUBLISHED: June 1986

STUDY MANAGER: Mr. Gerard F. Greco **CLASSIFICATION:** SECRET-RELROK

NUMBER OF PAGES: 100

AD NUMBER: C953939

STUDY CATEGORY: Concepts and Plans, Logistics

PREPARED FOR: ROK/U.S. Combined Forces Command and Eighth U.S. Army

ABSTRACT: This analysis estimates the time-phased requirements of Class IV war reserve material stocks needed by U.S. Army Forces in Northeast Asia to support barrier operations and the construction of unit and installation defense positions. Class IV materials required by the Civil Engineering Support Plan are excluded from consideration in this report. A scenario-based methodology was used to analyze the Class IV material requirements; calculations were made using an automated model which considered the FEBA movement and tactical postures of units over time. Estimated quantities are provided by time period, number, and tonnage of items. These data can be used to assist in the selection of specific quantities of items of material when stockage levels are established.

ESC-R-86-6

TITLE: Engineer Assessment, Korea: Forward Combat Zone Analysis

SHORT TITLE: EAK, FCZ

DATE PUBLISHED: July 1986

STUDY TEAM: Mr. Lyle G. Suprise
CPT John Livingston

CLASSIFICATION: SECRET-RELROK

NUMBER OF PAGES: Volume 1A-151
Volume 1B-322

AD NUMBER: C039754L

AD NUMBER: C039755L

STUDY CATEGORY: Operations and Force Structure

PREPARED FOR: ROK/U.S. Combined Forces Command

ABSTRACT: This study analyzed the engineer support posture in the CFC, Forward Combat Zone during wartime, including time-phased engineer support requirements and capabilities during a variety of combat scenarios. Based on this analysis, the study identified a number of shortfalls and imbalances in engineer resources, and recommended ways to reduce the shortfalls. This report is published in two volumes. Volume 1A contains the main paper and Annex A, the scenario description. Volume 1B contains Annexes B through K.

TITLE: USFK Family Support Systems Study

SHORT TITLE: None

DATE PUBLISHED: October 1985

STUDY MANAGER: Mr. Lyle Suprise

CLASSIFICATION: UNCLASSIFIED

NUMBER OF PAGES: 23

AD NUMBER: None

STUDY CATEGORY: Installations and Logistics

PREPARED FOR: Chief of Staff, U.S. Forces Korea

ABSTRACT: This report provides the general engineering cost estimates of the larger USFK Family Support Study. The analysis focused on developing order-of-magnitude cost estimates for several family support policy alternatives and increases in command-sponsored positions throughout USFK. Primary attention was given to costs of five essential facility categories: family housing; dependent schools; commissaries; exchanges; and medical facilities. In addition, methods for acquiring housing were assessed to determine the least costly means of acquiring needed housing over the planning horizon. The results are included in the Family Support Study report published by USFK.

ESC-R-85-13

TITLE: Engineer Assessment, Korea: FCZ Analysis, Analytic Data Base

SHORT TITLE: Data Base

DATE PUBLISHED: December 1985

STUDY TEAM: Mr. Lyle G. Surprise
CPT John D. Kiser

CLASSIFICATION: SECRET-RELROK

NUMBER OF PAGES: 194

AD NUMBER: None

PREPARED FOR: Combined Forces Command, Korea

ABSTRACT: This report contains the detailed data used to prepare the Engineer Assessment, Korea: Forward Combat Zone Analysis. The report contains estimates of engineer capability and requirements in the areas of mobility, countermobility, survivability, general engineering, and bridging. The data is stratified by Corps and Army Rear Area. This report is intended for use only by the Engineer Assessment, Korea analysis team and by military planners assigned to the Combined Forces Command.

ESC-R-84-1

TITLE: Engineer Analysis of Special Routes--Korea (Special-K)--Route C

SHORT TITLE: None

DATE PUBLISHED: March 1984

STUDY MANAGER: Mr. Lyle G. Surprise

CLASSIFICATION: SECRET-RELROK

NUMBER OF PAGES: 30

AD NUMBER: None

STUDY CATEGORY: Concepts and Plans; Operations and Force Structure

PREPARED FOR: ROK/U.S. Combined Forces Command

ABSTRACT: This report presents the intelligence, terrain analysis, and engineer assessment of the second in a series of route analyses. The engineer effort required to overcome obstacles to movement along the route is calculated. Results are presented in an oversized volume containing a series of map sheets, each having three topical overlays and photos of the most significant obstacles.

TITLE: Korea Barrier Study (Data Base Update)

SHORT TITLE: KBS Update

DATE PUBLISHED: June 1984

STUDY MANAGER: Dr. Andrew W. Harrell CLASSIFICATION: SECRET-RELROK

NUMBER OF PAGES: 4390

AD NUMBER: None

STUDY CATEGORY: Concepts and Plans

PREPARED FOR: ROK/U.S. Combined Forces Command

ABSTRACT: This report contains a complete update of the Korea barrier data base. Implementation of the results of the Korea Barrier Study resulted in changes for about 80 percent of the original data base elements. This update is valid as of 1 April 1984. It consists of a complete set of summary reports in both hard copy and formatted computer tape.

ESC-R-83-3

TITLE: Vulnerability of Airbases in the ROK--1982-1985

SHORT TITLE: VABK

REPORT DATE: March 1983

STUDY MANAGER: Dr. Lawrence A. Lang CLASSIFICATION: SECRET-RELROK

NUMBER OF PAGES: 63

AD NUMBER: C031131L

STUDY CATEGORY: Installations and Logistics

PREPARED FOR: ROK/U.S. Combined Forces Command

ABSTRACT: This report is an executive summary for several phases of a long ESC study effort of air base vulnerability in the ROK during the time period 1982 through 1985. This report contains a background of the project, a procedure to be used for generating and quantifying the effects of damage by air attacks and ranger/commando attacks against air bases. Summary damage data from a single attack against multiple air bases described by a DIA scenario are included. The damage data were generated by means of an ESC-developed manual simulation procedure (MANMADE) for the air attack and by means of a survey questionnaire method for the SPF attacks. Observations and recommendations for improving the engineer response to damage are provided for both operational surfaces and for collateral facilities on the air bases. Separate annexes contain a description of the scenario and a bibliography.

ESC-R-83-4

TITLE: Assessment of Special Purpose Forces Threat to Air Bases in the ROK

SHORT TITLE: None

REPORT DATE: March 1983

STUDY MANAGER: Ms. Jill M. Davis

CLASSIFICATION: SECRET-RELROK

NUMBER OF PAGES: 69

AD NUMBER: C031132L

STUDY CATEGORY: Installations and Logistics

PREPARED FOR: ROK/U.S. Combined Forces Command

ABSTRACT: This report assesses the vulnerability of air bases in the ROK to attack by Special Purpose Forces (SPF) of nK. Using DIA's *north Korean Pre-H-Hour Attack Scenario Study* as the basis of threat description, ESC developed a survey-interview process by which they quantified the impact of the SPF attack on categories of air bases in the ROK. The results achieved through this exercise reveal a picture of the extent of damage anticipated from execution of one logical scenario as well as a list of recommended actions to make air bases in the ROK secure against such attacks.

ESC R-83-5

TITLE: Assessing the Vulnerability of Air Bases in the ROK to Air Attack

SHORT TITLE: None

REPORT DATE: March 1983

STUDY MANAGER: Mr. Larry Wright

CLASSIFICATION: SECRET-RELROK

NUMBER OF PAGES: 140

AD NUMBER: C031133L

STUDY CATEGORY: Installations and Logistics

PREPARED FOR: ROK/U.S. Combined Forces Command

ABSTRACT: This report describes damage to air bases in the ROK that could be expected to result from air attacks from 1982 through 1985. The report contains a background of the problem, a description of a DIA scenario and ESC modifications to it, a description of the ESC study methodology, estimates of total theater air base damage resulting from a single scenario attack, detailed presentation of damage at one air base, and a method for addressing the air base vulnerability problem--goal programming. In essence, the report is a "how to" approach for estimating air base damage. Separate annexes contain a detailed description of the ESC-developed manual simulation method (MANMADE) for estimating air base damage, a summary of some other approaches for estimating air base damage, detailed air base damage estimates obtained by using MANMADE, and a bibliography.

ESC R-83-6

TITLE: Engineer Implications of Damage to Air Bases in the ROK

SHORT TITLE: None

REPORT DATE: March 1983

STUDY MANAGER: Dr. Lawrence A. Lang CLASSIFICATION: CONFIDENTIAL-RELROK

NUMBER OF PAGES: 56

AD NUMBER: C031218L

STUDY CATEGORY: Installations and Logistics

PREPARED FOR: ROK/U.S. Combined Forces Command

ABSTRACT: This report contains a background of the project, defines a methodology for computing the recovery capability for operational surface damage at air bases in the ROK, provides minimal data for recovering from damage to collateral facilities, and gives some observations and recommendations designed to improve the engineer response to damage at air bases. The recovery capability for operational surfaces consists of four phases: damage assessment, data analysis, explosive ordinance disposal (EOD), and crater repair. The damage data for the report were generated by a manual simulation process for a single attack which was derived from a DIA scenario. There is a brief section on engineer tasks in a chemical environment. The report also contains an annex which summarizes crater repair techniques and a bibliography.

ESC R-83-8

TITLE: Methodology for Conducting an Engineer Analysis of Special Routes-Korea

SHORT TITLE: None

REPORT DATE: September 1983

STUDY MANAGER: Mr. Elton Underwood CLASSIFICATION: SECRET-RELROK

NUMBER OF PAGES: 65

AD NUMBER: None

STUDY CATEGORY: Intelligence

PREPARED FOR: ROK/U.S. Combined Forces Command

ABSTRACT: This report describes the methods used by ESC to perform the intelligence analysis and engineer assessment of routes for SPECIAL-K study. It is intended for use by others as a guide should they conduct similar analyses. In addition to processes, formulae and equipment used, the report contains a discussion of data sources.

ESC R-83-15

TITLE: Engineer Analysis of Special Routes-Korea (SPECIAL-K) Pilot Route B

SHORT TITLE: None

REPORT DATE: September 1983

STUDY MANAGER: Mr. Elton Underwood CLASSIFICATION: SECRET-RELROK

NUMBER OF PAGES: 30

AD NUMBER: None

STUDY CATEGORY: Intelligence

PREPARED FOR: ROK/U.S. Combined Forces Command

ABSTRACT: This report presents the intelligence, terrain analysis, and engineer assessment of the first in a series of route analyses. The engineer effort required to overcome obstacles to movement along the route is calculated. Results are presented in an oversized volume containing a series of map sheets, each having three topical overlays and photos of the most significant obstacles.

ESC-R-82-4

TITLE: An Evaluation of the Adequacy of the Obstacle Plan Supporting CINCUNC/CFC
OPLAN 5027

SHORT TITLE: None

REPORT DATE: July 1982

STUDY MANAGER: Mr. Elton H. Underwood CLASSIFICATION: SECRET-RELROK

NUMBER OF PAGES: 5 Volumes, 844 Pages AD NUMBER: Vol I--C028955L
Vol II--C028956L
Vol III--C028957L
IV & V--Not in DTIC

STUDY CATEGORY: Concepts and Plans

PREPARED FOR: ROK/U.S. Combined Forces Command

ABSTRACT: This study determines the feasibility of executing the current obstacle plan supporting OPLAN during periods of short warning and evaluates the operational effectiveness of the obstacles once they are in place. ESC determined the feasibility of completing the obstacle plan by a time-phased comparison of assigned unit capability to install obstacles within given readiness periods against the requirements of assigned obstacles, and by an assessment of the availability of required materials at designated PSPs to complete each obstacle. The effectiveness of the overall obstacle plan is assessed by a series of analyses on enemy threat, obstacle density and mix, support of defensive weapons fire, emplaced life of mines, terrain, and cross-country movement for tanks in both frozen and unfrozen soils. Recommendations are given for correcting problem areas detected concerning the feasibility (unit capability and material availability) of installing obstacles, and for correcting deficiencies detected in the overall obstacle plan.

ESC-R-82-6

TITLE: FASCAM Employment Potential for the Combined Forces Command

SHORT TITLE: None

REPORT DATE: September 1982

STUDY MANAGER: Mr. Michael M. Kishiyama CLASSIFICATION: SECRET-RELROK

NUMBER OF PAGES: 79

AD NUMBER: C030088L

STUDY CATEGORY: Concepts and Plans

PREPARED FOR: ROK/U.S. Combined Forces Command

ABSTRACT: This study examines the feasibility of employing scatterable mines as an alternative or supplement to existing or planned minefields in the ROK and their potential for implementing recommendations for improving the CFC (ROK/U.S.) obstacle plan. Two case studies assess FASCAM system selection and manpower and storage implications as compared with the current obstacle plan. Basic descriptions of FASCAM systems discussion of employment concepts, and a brief status of the program and technology transfer are included. Findings and conclusions are drawn from the overall analysis.

ESC-R-336

TITLE: DMZ Tunnel Study--1980 Update

SHORT TITLE: None

DATE PUBLISHED: August 1980

STUDY MANAGER: Mr. Elton H. Underwood CLASSIFICATION: SECRET-RELROK

NUMBER OF PAGES: 179

AD NUMBER: C023090L

STUDY CATEGORY: Intelligence

PREPARED FOR: U.S. Forces Korea

ABSTRACT: This study makes a contribution toward satisfying a requirement of the J2, United Nations Command/U.S. Forces Korea/Eighth U.S. Army, concerning north Korean tunnels under the Demilitarized Zone in Korea. The analysis considers terrain, geology, cultural development, engineering considerations, and other intelligence.

ESC-R-307

TITLES: Tunnel Study Update--Western DMZ

SHORT TITLE: None

DATE PUBLISHED: December 1978

STUDY TEAM: Mr. Elton H. Underwood
Mr. H. Eugene Deibert

CLASSIFICATION: SECRET

NUMBER OF PAGES: 116

AD NUMBER: C017136L

STUDY CATEGORY: Intelligence

PREPARED FOR: U.S. Forces Korea

ABSTRACT: This study made a contribution toward satisfying a requirement of the J2 United Nations Command/U.S. Forces Korea/Eighth U.S. Army concerning north Korean tunnels under the Demilitarized Zone in Korea. The analysis considered terrain, geology, cultural development, engineering considerations, and other intelligence.

ESC R-306

TITLE: Vulnerability of Military Air Bases in South Korea--A Damage and Repair Assessment

SHORT TITLE: None

DATE PUBLISHED: March 1978

STUDY MANAGER: Mr. Robert B. Bockting

CLASSIFICATION: SECRET

NUMBER OF PAGES: 132

AD NUMBER: C014101L

STUDY CATEGORY: Concepts and Plans

PREPARED FOR: U.S. Forces Korea

ABSTRACT: This study addressed a large, conventional, minimum-warning, mid-1980s enemy bombing attack against 14 selected USAF and ROKAF air bases in South Korea. It determined the extent of damage sustained by these bases from a total of four strikes delivered in sequence. It further determined the number of bomb craters requiring repair to restore emergency flight operations at each base.

ESC R-303

TITLE: An Operational Assessment Related to Project: "Night Fishing"

SHORT TITLE: None

DATE PUBLISHED: January 1977

STUDY MANAGER: Mr. Elton H. Underwood CLASSIFICATION: SECRET

NUMBER OF PAGES: 86

AD NUMBER: C010104L

STUDY CATEGORY: Threat

PREPARED FOR: U.S. Forces Korea

ABSTRACT: This study contributed toward locating areas in Korea which are suitable for selective types of underground facilities. Site selection criteria were developed and served as a basis for determining potential locations of these facilities. Terrain, geology, and cultural development were considered in the analysis and site selection process.

ESC-R-293

TITLE: Special Stationing Scenario

SHORT TITLE: None

DATE PUBLISHED: April 1977

STUDY MANAGER: CPT William J. Burke CLASSIFICATION: UNCLASSIFIED

NUMBER OF PAGES: 9

AD NUMBER: None

STUDY CATEGORY: Operations and Force Structure

PREPARED FOR: United States Army Training and Doctrine Command

ABSTRACT: This paper examined the feasibility and dollar cost of a four-unit restationing scenario. The scenario was predicated on withdrawing the 2d Infantry Division from the Republic of Korea and stationing it at Fort Campbell. To accommodate this withdrawal, the 101st Airborne Division (Air Assault) was stationed at Fort Hood, the 2d Armored Division at Fort Bliss, and 3d Armored Cavalry Regiment at Fort Irwin.

ESC-R-290

TITLE: Army Forward Strategic Basing Requirements

SHORT TITLE: None

DATE PUBLISHED: June 1976

STUDY MANAGER: Mr. Dean E. Considine CLASSIFICATION: SECRET-NOFORN

NUMBER OF VOLUMES: 3

AD NUMBER: Vol I--C007321

Vol II--C007322

Vol III-C007323

STUDY CATEGORY: Logistics

PREPARED FOR: Office, Deputy Chief of Staff for Operations and Plans, Director of Strategy, Plans, and Policy Office

ABSTRACT: This is a detailed, study of U.S. strategic deployment base requirements worldwide. It was performed for DCSOPS as an outgrowth of overflight problems encountered in the 1973 Middle East crisis. It derives the basis for an Army position on the need for such bases. The study considers strategic deployment requirements worldwide (excluding NATO) in terms of two types of bases designed to facilitate rapid air or sea deployment of U.S. forces. The study determines relative strategic support values for candidate base locations. Factors examined were: force deployment requirements for 22 contingency situations, the impact of overflight and landing restrictions on air deployment, and the impact which loss of free passage in international waters would have on surface deployment. Current and future in-flight refueling capabilities are applied as appropriate. In light of expected availability and long-term retainability, the study recommends a prioritized listing of basing requirements. Base development costs also are determined.

ESC-R-284

TITLE: Land Force Planning Estimates, Northeast Asia

SHORT TITLE: None

DATE PUBLISHED: December 1976

STUDY MANAGER: Mr. John U. Physioc

CLASSIFICATION: SECRET

NUMBER OF PAGES: 82

AD NUMBER: None

STUDY CATEGORY: Concepts and Plans

PREPARED FOR: Office, Deputy Chief of Staff for Operations and Plans

ABSTRACT: This study develops the mid-range U.S. Army land force requirements to assist in the defense of the Republic of Korea. Two conflict situations are examined. For each situation, the study develops U.S. land forces required to conduct a successful defense and to regain lost territory if required. Terrain characteristics and lines of communication within the area of operations are evaluated to determine their influence on military operations.

ESC-R-280

TITLE: north Korean Tunnels Under the DMZ

SHORT TITLE: None

DATE PUBLISHED: January 1976

STUDY MANAGER: Mr. Elton Underwood CLASSIFICATION: SECRET

NUMBER OF PAGES: 17

AD NUMBER: None

STUDY CATEGORY: Concepts and Plans

PREPARED FOR: United Nations Command, U.S. Forces Korea, Eighth U.S. Army

ABSTRACT: This paper addresses the problem of identifying and locating selected underground facilities in Korea. The primary approach to the problem was through an all-source analysis. A cursory analysis was made of each potential facility. A detailed analysis of each potential facility was initiated.

ESC-R-248

TITLE: Base Development Plans

SHORT TITLE: BDP

DATE PUBLISHED: N/A

STUDY MANAGER: Mr. Edward W. King

CLASSIFICATION: SECRET

NUMBER OF PAGES: N/A

AD NUMBER: None

STUDY CATEGORY: Logistics

PREPARED FOR: Army Component Commands

ABSTRACT: During 1973, the Engineer Strategic Studies Group completed three BDPs; they supported contingency OPLANS 4102 (Alternate LOC), 6500, and 5027. These BDPs include an engineer intelligence annex, listings of facility and installation requirements and assets, time-phased construction projects lists and bills of materiel, and any pre-D-day construction program that is appropriate.

ESC-R-209

TITLE: Force Requirements--Northeast Asia

SHORT TITLE: None

DATE PUBLISHED: August 1971

STUDY MANAGER: Mr. William H. Norris

CLASSIFICATION: SECRET

NUMBER OF PAGES: 21

AD NUMBER: None

STUDY CATEGORY: Force Levels

PREPARED FOR: Office, Deputy Chief of Staff for Military Operations

ABSTRACT: This analysis determines the expected U.S. force requirements for Northeast Asia. The analysis examines the terrain in the areas of designated defense lines and the doctrine for unit frontage for the opposing forces.

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